A Rational Strategy for the Use of Amniotic Epithelial Stem Cell Therapy for Liver Diseases.

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Public Summary:

This review paper describes why human amnion-derived stem cells can be utilized to treat many different types of diseases based on the beneficial properties. The evidence-based strategic approach is critical to their potential use in the clinic.

Scientific Abstract:

SummaryStem cell-based therapies hold the potential to alleviate the burden of many serious diseases, including those of the liver. Among the different types of stem cells, human placenta-derived stem cells are potentially one of the most clinically applicable stem cells because of their tissue-specific advantages. They are a readily available cell source that can be procured in a noninvasive manner, and there are few ethical concerns regarding their use. Recent studies have demonstrated that the amniotic epithelium contains stem cells that possess four unique and advantageous properties; human amniotic epithelial cells (hAECs) have low immunogenicity, secrete several immune regulatory molecules, possess the potential to differentiate into all three germ layers, and contain abundant lysosomes allowing them to secrete lysosomal enzymes. This perspective article provides an overview of the beneficial properties of hAECs and proposes a rational strategy for translating placental stem cells toward clinical application for various liver diseases. SIGNIFICANCE: This article provides an overview of the beneficial properties of one type of human placental stem cell and proposes a rational strategy for translating placental stem cells toward clinical application for various liver diseases.

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